

(19)



Europäisches Patentamt  
European Patent Office  
Office européen des brevets



(11)

**EP 0 962 394 A1**

(12)

**EUROPEAN PATENT APPLICATION**

(43) Date of publication:  
**08.12.1999 Bulletin 1999/49**

(51) Int Cl.<sup>6</sup>: **B65D 1/24**

(21) Application number: **99830292.1**

(22) Date of filing: **12.05.1999**

(84) Designated Contracting States:  
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU  
MC NL PT SE**  
Designated Extension States:  
**AL LT LV MK RO SI**

(71) Applicant: **Tontarelli, Sergio**  
**I-60022 Castelfidardo (AN) (IT)**

(72) Inventor: **Tontarelli, Sergio**  
**I-60022 Castelfidardo (AN) (IT)**

(30) Priority: **05.06.1998 IT AN980032 U**

(74) Representative: **Baldi, Claudio**  
**Piazza Ghisleri, 3**  
**60035 Jesi (Ancona) (IT)**

(54) **Plastic crate with a very rigid top edge**

(57) The present invention relates to a plastic moulded crate (1) provided with an enlarged rigid edge

(2) with sinusoidal transversal cross-section, which can be conventionally defined as "double-S", on the top of the four sides.

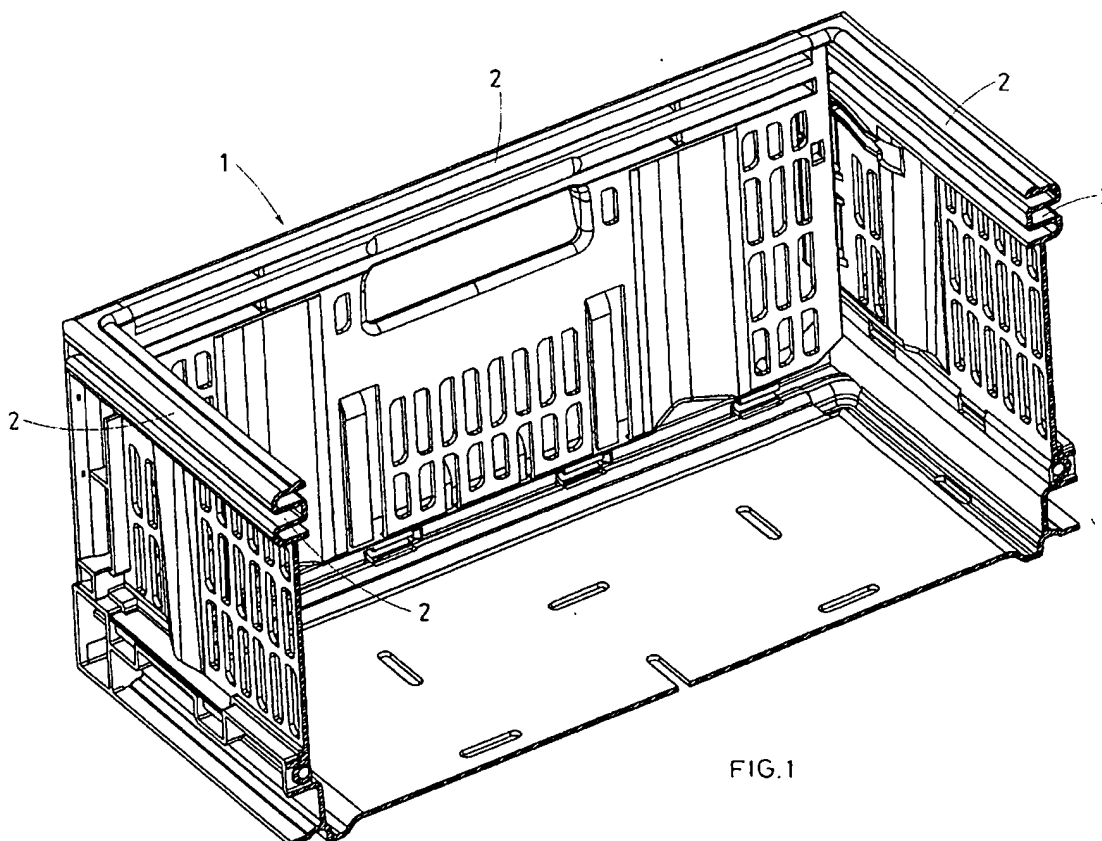


FIG.1

**EP 0 962 394 A1**

## Description

[0001] This patent application relates to a plastic moulded crate with a very rigid top edge.

[0002] As it is known, all plastic moulded crates are provided with an enlarged edge located in longitudinal position on the top of the four sides.

[0003] The function of the enlarged edge is to make the structure of the whole crate rigid. In particular, the two sections of the enlarged edge located on the longitudinal sides - slightly above the holding cut which is normally provided in all crates - are also designed to make it easier for the user to grab and lift the crate.

[0004] Up to now, the rigid edges are produced according to two alternative constructive solutions, but none of them can be considered as optimum in view of its functionality.

[0005] According to the traditional and more common constructive solution, the edge of the crate features a C transversal cross-section, with the concavity facing towards the inside of the crate.

[0006] As a matter of fact, it must be noted that this type of edge is not able to give effective stiffness to the sides of the crate. The presence of the C cross-section of the edge is explained by the fact that this is a very easy and cheap solution, that only needs suitable modelling of the mould used for the sides of the crane.

[0007] The alternative solution is more complex and expensive, but much more effective in terms of stiffening capacity and holding mode of the crate. According to this technology, the edge of the crate is provided with a tubular cross-section with circular or square section.

[0008] To his purpose, high-pressure air jets must be conveyed inside the moulding matrix when moulding the crate, to interfere with the moulding material still in fluid state, so as to create the hollow internal section of the tubular rigid edge.

[0009] The present invention is designed to overcome the inconvenience of the two above technologies. In particular, the stiff edge of the crate according to the invention features both the practical and economical advantages of the C cross-section edges and the excellent rigidity of the edges provided with tubular structure.

[0010] As a matter of fact, the crate according to the present invention features a top stiff edge with a particular transversal cross-section, which can be defined as "double S".

[0011] The tests carried out during the experimental stage have shown that this particular type of cross-section is capable of making the edge extremely rigid and sturdy.

[0012] On the other hand, this special kind of edge can be obtained using the traditional moulding processes with traditional matrixes suitably shaped to obtain the "double S" cross-section.

[0013] For major clarity the description according to the invention continues with reference to the enclosed drawing, which is intended for purposes of illustration

and not in a limiting sense, whereby figure 1 is an axonometric view of the crate according to the invention, in which one of the longitudinal walls has been removed.

[0014] With reference to this figure, the plastic moulded crate (1) features a traditional general structure.

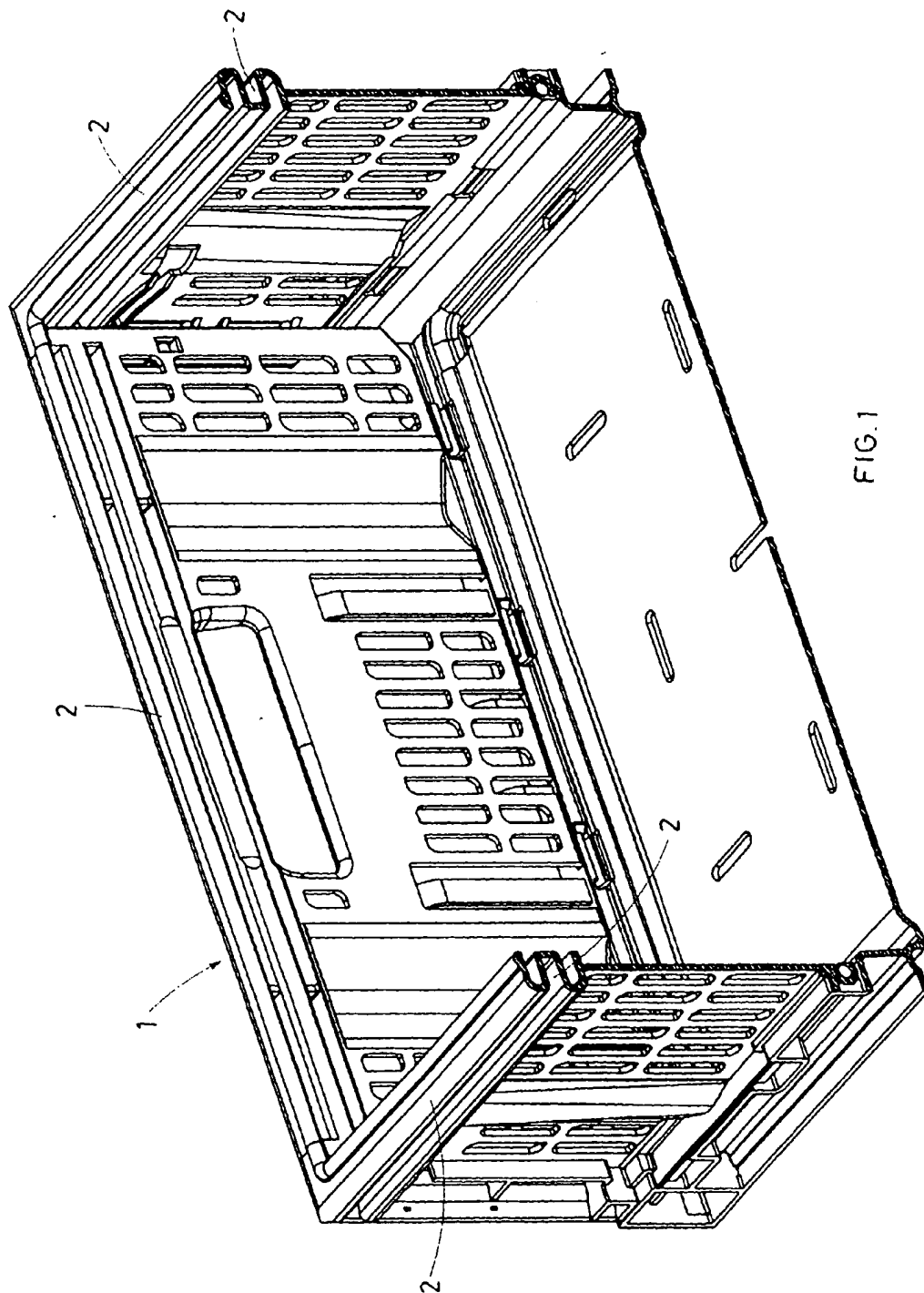
[0015] As mentioned before, its peculiarity consists in the fact that it is provided with an enlarged rigid edge (2) with sinusoidal transversal cross-section, conventionally defined as "double-S", on the top of the four sides.

[0016] This particular type of cross-section creates three alternate loops that delimit three corresponding concavities, of which the upper and lower concavities have the same direction, while the central concavity is oriented towards the opposite direction.

[0017] The "double S" cross-section of the enlarged edge (2) according to the invention is oriented so that the first and third loop face the inside of the crate, while the second one faces outwards.

## Claims

1. Moulded plastic crate characterised in that it features an enlarged rigid edge (2) with sinusoidal transversal cross-section, which can be conventionally defined as "double-S", on the top of the four sides.
2. Moulded plastic crate, according to claim 1, characterised in that the sinusoidal cross-section of the enlarged edge (2) is oriented so that the first and third loop face the inside of the crate, while the second one faces outwards.





European Patent  
Office

# EUROPEAN SEARCH REPORT

Application Number  
EP 99 83 0292

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	EP 0 285 953 A (PLASGAD PLASTIC PRODUCTS) 12 October 1988 (1988-10-12) * column 2, line 30 - column 3, line 26 * * figures 1-4 *	1,2	B65D1/24
A	EP 0 770 552 A (GOETZ WILHELM) 2 May 1997 (1997-05-02) * column 6, line 52 - column 7, line 27 * * figures 1-7 *	1	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			B65D
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 20 September 1999	Examiner Papatheofrastou, M
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone  Y : particularly relevant if combined with another document of the same category  A : technological background  O : non-written disclosure  P : intermediate document</p> <p>T : theory or principle underlying the invention  E : earlier patent document, but published on, or after the filing date  D : document cited in the application  L : document cited for other reasons  &amp; : member of the same patent family, corresponding document</p>			

EPO FORM 1503 03 82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.

EP 99 83 0292

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on  
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

20-09-1999

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
EP 0285953	A	12-10-1988	AU	1443488 A	13-10-1988
EP 0770552	A	02-05-1997	NONE		

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

**THIS PAGE BLANK (USPTO)**